WE CLAIM:

1. A method of receiving successive fields of transmitted data, wherein each field comprises a plurality of data segments and each data segment contains first E-VSB data, second E-VSB data, or VSB data, wherein the first and second E-VSB data are coded at different coding rates, the method comprising:

receiving a data field comprising one of a plurality of mixes of data segments distributed throughout the field and a map comprising map symbols that designate the data segment mix contained in the received data field, wherein each of the plurality of mixes denotes the number and locations of data segments containing first E-VSB data, second E-VSB data, and/or VSB data in a field, and wherein the number of map symbols in the map is insufficient to denote all possible different combinations of data segments in the field that may contain first E-VSB data, second E-VSB data, and/or VSB data;

decoding the received map symbols; and,

separating the received data segments containing first E-VSB data, second E-VSB data, and/or VSB data according to the decoded map symbols.

2. The method of claim 1 wherein the decoding of the received map symbols comprises decoding the received map symbols using stored information to separate the received data segments containing the first E-VSB data, the second E-VSB data, and/or the VSB data, and wherein the stored information defines the plurality of mixes of the data segments.

3. The method of claim 2 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data, and wherein at least one of the plurality of mixes defined in the stored information denotes the number of data segments containing 1/2 rate coded E-VSB data and VSB data in a field.

4. The method of claim 2 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data, and wherein at least one the plurality of mixes defined in the stored information denotes the number of data segments containing 1/4 rate coded E-VSB data and VSB data in a field.

5. The method of claim 2 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data, and wherein at least one of the plurality of mixes defined in the stored information denotes the number of data segments containing 1/4 rate coded E-VSB data and 1/2 rate coded E-VSB data in a field.

6. The method of claim 2 wherein the stored information comprises information stored in a look up table.

7. The method of claim 1 wherein the map is received as a Kerdock code vector, and wherein the decoding of the received map symbols comprises Kerdock decoding the Kerdock code vector.

8. The method of claim 7 wherein the Kerdock decoding of the Kerdock code vector comprises Kerdock decoding the Kerdock code vector using a 64/12 Kerdock decoder.

9. The method of claim 7 wherein each of the fields includes a Kerdock code vector, wherein the fields comprise odd fields and even fields, and wherein the Kerdock code vectors contained in the even fields are inverted with respect to the Kerdock code vectors contained in the odd fields.

10. The method of claim 1 wherein each of the fields includes a map, wherein the fields comprise odd fields and even fields, and wherein the maps comprise current maps contained in the odd fields and next maps contained in the even fields.

11. The method of claim 10 wherein the maps contain count information indicating when to switch from using one of the current maps to one of the next maps.

12. The method of claim 10 wherein the maps contained in the even fields are inverted with respect to the maps contained in the odd fields.

13. The method of claim 1 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, and

wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data.

14. The method of claim 1 wherein the map further comprises count symbols corresponding to at least a portion of a frame count.

15. The method of claim 1 wherein all of the map symbols of the map are decoded in order to determine either the number of segments containing the first E-VSB data or the number of segments containing the second E-VSB data or both.

16. The method of claim 15 wherein the decoding of the received map symbols comprises decoding the received map symbols using stored information to separate the received data segments containing the first E-VSB data, the second E-VSB data, and/or the VSB data, and wherein the stored information defines the plurality of mixes of the data segments.

17. The method of claim 16 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, wherein the second E-VSB data segments contain 1/4 rate

coded E-VSB data, and wherein at least one of the plurality of mixes defined in the stored information denotes the number of data segments containing 1/2 rate coded E-VSB data and VSB data in a field.

18. The method of claim 16 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data, and wherein at least one of the plurality of mixes defined in the stored information denotes the number of data segments containing 1/4 rate coded E-VSB data and VSB data in a field.

19. The method of claim 16 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data, and wherein at least one of the plurality of mixes defined in the stored information denotes the number of data segments containing 1/4 rate coded E-VSB data and 1/2 rate coded E-VSB data in a field.

20. The method of claim 16 wherein the stored information comprises information stored in a look up table.

21. The method of claim 15 wherein the map is received as a Kerdock code vector, and wherein the decoding of the received map symbols comprises Kerdock decoding the Kerdock code vector.

22. The method of claim 21 wherein the Kerdock decoding of the Kerdock code vector comprises Kerdock decoding the Kerdock code vector using a 64/12 Kerdock decoder.

23. The method of claim 21 wherein each of the fields includes a Kerdock code vector, wherein the fields comprise odd fields and even fields, and wherein the Kerdock code vectors contained in the even fields are inverted with respect to the Kerdock code vectors contained in the odd fields.

24. The method of claim 15 wherein each of the fields includes a map, wherein the fields comprise odd fields and even fields, and wherein the maps comprise

current maps contained in the odd fields and next maps contained in the even fields.

25. The method of claim 24 wherein the maps contain count information indicating when to switch from using one of the current maps to one of the next maps.

26. The method of claim 24 wherein the maps contained in the even fields are inverted with respect to the maps contained in the odd fields.

27. The method of claim 15 wherein the first E-VSB data segments contain 1/2 rate coded E-VSB data, and wherein the second E-VSB data segments contain 1/4 rate coded E-VSB data.

28. The method of claim 15 wherein the map further comprises count symbols corresponding to at least a portion of a frame count.

29. The method of claim 1 wherein frames each comprises an odd field and an even field, wherein a map contained in one of the odd fields and the even fields comprises current map symbols and part of a frame count,

wherein a map contained in the other of the odd fields and the even fields comprises next map symbols and the rest of the frame count, wherein the current map symbols are used to locate the data segments contained in a current field, wherein the next map symbols are used to locate the data segments contained in a subsequent field, and wherein the frame count indicates the subsequent field.

30. The method of claim 29 wherein the map contained in one of the even and odd fields comprises $\{A_0\ B_0\ C_0\}$, wherein the map contained in the other of the even and odd fields comprises $\{A_e\ B_e\ C_e\}$, wherein $\{A_0\ B_0\ C_0\}$ contains the current map symbols and part of the frame count, and wherein $\{A_e\ B_e\ C_e\}$ contains the next map symbols and the rest of the frame count.

31. The method of claim 30 wherein $\{A_0\ B_0\ C_0\}$ comprises a first 64 bit Kerdock Code vector, and wherein $\{A_e\ B_e\ C_e\}$ comprises a second 64 bit Kerdock Code vector.

32. The method of claim 31 further comprising inverting only one of the first and second 64 bit Kerdock code vectors.

33. The method of claim 32 further comprising combining the inverted one of the first and second 64 bit Kerdock code vectors and the non-inverted one of the first and second 64 bit Kerdock code vectors.

34. The method of claim 31 further comprising decoding the first and second Kerdock code vectors by use of a 64/12 Kerdock decoder.

35. A method of transmitting successive fields of data, wherein each of the fields comprises a plurality of data segments and each data segment contains first E-VSB data, second E-VSB data, or VSB data, and wherein the first and second E-VSB data are coded at different coding rates, the method comprising:

generating a map for each of the fields, wherein the map comprises map symbols that define a plurality of mixes of the data segments, wherein each of the plurality of mixes denotes the numbers and locations of data segments containing first E-VSB data, second E-VSB data, and/or VSB data, and wherein the number of map symbols in the map is insufficient to denote all possible different combinations of data segments in the field that

may contain first E-VSB data, second E-VSB data, and/or VSB data;

inserting each of the maps into a corresponding one of the fields;

inserting first E-VSB data into first E-VSB data segments of each of the fields, second E-VSB data into second E-VSB data segments of each of the fields, and/or VSB data into VSB data segments of each of the fields according to corresponding ones of the maps; and,

transmitting the fields.

36. The method of claim 35 wherein the inserting of each of the maps into a corresponding one of the fields comprises:

encoding each of the maps as a corresponding Kerdock code vector; and,

inserting each of the Kerdock code vectors into a corresponding one of the fields.

37. The method of claim 36 wherein the encoding of each of the maps as a corresponding Kerdock code vector comprises encoding each of the maps as a corresponding Kerdock code vector using a 64/12 Kerdock encoder.

38. The method of claim 36 wherein each of the fields includes a Kerdock code vector, wherein the fields comprise odd fields and even fields, and wherein the method further comprises inverting the Kerdock code vectors contained in the even fields with respect to the Kerdock code vectors contained in the odd fields.

39. The method of claim 35 wherein the maps comprise current maps and next maps, wherein the fields comprise odd fields and even fields, and wherein the inserting of the map into the field comprises inserting the current maps into the odd fields and the next maps into the even fields.

40. The method of claim 39 wherein the maps contain count information indicating when to switch from using one of the current maps to one of the next maps.

41. The method of claim 39 wherein the maps contained in the even fields are inverted with respect to the maps contained in the odd fields.

42. The method of claim 35 wherein each of the maps comprises symbols corresponding to at least a portion of a frame count.

43. The method of claim 35 wherein all of the map symbols of the map require decoding in order to determine either the number of segments containing the first E-VSB data or the number of segments containing the second E-VSB data or both.

44. The method of claim 43 wherein the inserting of each of the maps into a corresponding one of the fields comprises:

encoding each of the maps as a corresponding Kerdock code vector; and,

inserting each of the Kerdock code vectors into a corresponding one of the fields.

45. The method of claim 44 wherein the encoding of each of the maps as a corresponding Kerdock code vector comprises encoding each of the maps as a corresponding Kerdock code vector using a 64/12 Kerdock encoder.

46. The method of claim 44 wherein each of the fields includes a Kerdock code vector, wherein the fields comprise odd fields and even fields, and wherein the method further comprises inverting the Kerdock code vectors contained in the even fields with respect to the Kerdock code vectors contained in the odd fields.

47. The method of claim 43 wherein the maps comprise current maps and next maps, wherein the fields comprise odd fields and even fields, and wherein the inserting of the map into the field comprises inserting the current maps into the odd fields and the next maps into the even fields.

48. The method of claim 47 wherein the maps contain count information indicating when to switch from using one of the current maps to one of the next maps.

49. The method of claim 47 wherein the maps contained in the even fields are inverted with respect to the maps contained in the odd fields.

50. The method of claim 43 wherein each of the maps comprises symbols corresponding to at least a portion of a frame count.

51. The method of claim 35 wherein frames each comprises an odd field and an even field, wherein a map contained in one of the odd fields and the even fields comprises current map symbols and part of a frame count, wherein a map contained in the other of the odd fields and the even fields comprises next map symbols and the rest of the frame count, wherein the current map symbols are used to locate the data segments contained in a current field, wherein the next map symbols are used to locate the data segments contained in a subsequent field, and wherein the frame count indicates the subsequent field.

52. The method of claim 51 wherein the map contained in one of the even and odd fields comprises $\{A_0\ B_0\ C_0\}$, wherein the map contained in the other of the even and odd fields comprises $\{A_e\ B_e\ C_e\}$, wherein $\{A_0\ B_0\ C_0\}$ contains the current map symbols and part of the frame count, and wherein $\{A_e\ B_e\ C_e\}$ contains the next map symbols and the rest of the frame count.

53. The method of claim 52 wherein $\{A_0\ B_0\ C_0\}$ comprises a first 64 bit Kerdock Code vector, and wherein $\{A_e\ B_e\ C_e\}$ comprises a second 64 bit Kerdock Code vector.

54. The method of claim 53 further comprising inverting only one of the first and second 64 bit Kerdock code vectors.

55. The method of claim 53 further comprising encoding each of the maps as a Kerdock code vector by use of a 64/12 Kerdock encoder.